THE NEW JERSEY FIREFIGHTER'S HANDBOOK ADDENDUM

THE NEW JERSEY FIREFIGHTER'S HANDBOOK ADDENDUM



The New Jersey Firefighter's Handbook Addendum

Thomson Delmar Learning

Vice President, Technology and Trades SBU:

Editorial Director:

Sandy Clark

Acquisitions Editor:

Alison S. Weintraub

Developmental Editor:

Jennifer A. Thompson

COPYRIGHT 2005 by Thomson Delmar Learning. Thomson and Delmar Learning are trademarks used herein under license.

Printed in Canada

1 2 3 4 5 XX 07 06 05 04

For more information contact Delmar Learning

Executive Woods

5 Maxwell Drive, PO Box 8007,

Clifton Park, NY 12065-8007

Or find us on the World Wide Web at

www.delmarlearning.com

Section D: Chapter I and Chapter II are based on the copyrighted works of Associated Electric & Gas Insurance Services Limited and AEGIS Insurance Services, Inc. © 2002. Used by permission. All rights reserved.

Marketing Director:

Dave Garza

Channel Manager:

Bill Lawrensen

Marketing Coordinator:

Mark Pierro

Production Director:

Mary Ellen Black

Production Manager:

Larry Main

Production Editor:

Thomas Stover

Technology Project Manager:

Kevin Smith

Editorial Assistants:

Jennifer Luck Stacey Wiktorek

ISBN: 1-4180-6083-6

ALL RIGHTS RESERVED. Portions of this work © 2000. No part of this work covered by the copyright hereon may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, Web distribution, or information storage and retrieval systems—without the written permission of the publisher.

For permission to use material from the text or product, contact us by

(800) 730-2214 Tel. (800) 730-2215 Fax

www.thomsonrights.com

NOTICE TO THE READER

Publisher does not warrant or guarantee any of the products described herein or perform any independent analysis in connection with any of the product information contained herein. Publisher does not assume, and expressly disclaims, any obligation to obtain and include information other than that provided to it by the manufacturer.

The reader is expressly warned to consider and adopt all safety precautions that might be indicated by the activities herein and to avoid all potential hazards. By following the instructions contained herein, the reader willingly assumes all risks in connection with such instructions.

The publisher makes no representation or warranties of any kind, including but not limited to, the warranties of fitness for particular purpose or merchantability, nor are any such representations implied with respect to the material set forth herein, and the publisher takes no responsibility with respect to such material. The publisher shall not be liable for any special, consequential, or exemplary damages resulting, in whole or part, from the readers' use of, or reliance upon, this material.



CONTENTS

| FOREWORD viii ACKNOWLEDGEMENTS viii DEDICATION ix |
|---|
| |
| SECTION A WELCOME1 |
| Introduction and Welcome |
| |
| SECTION B NEW JERSEY FIRE AND EMERGENCY SERVICE RESOURCES 3 |
| Objectives3New Jersey Government3New Jersey Division of Fire Safety3Division of Fire Safety Programs5Bureau of Fire Code Enforcement Programs6Bureau of Fire Department Services Programs7Other State Resources10Review Questions10 |
| |
| |
| SECTION C NEW JERSEY FIRE SERVICE STANDARDS AND REGULATIONS |
| Objectives |
| |

| Major Requirements of the Standard |
|--|
| |
| SECTION D PUBLIC UTILITIES, PROPANE, AND CARBON MONOXIDE HAZARDS 49 |
| Introduction |
| CHAPTER I RECOGNIZING AND AVOIDING THE HAZARDS OF ELECTRICAL EQUIPMENT |
| Introduction 50 Electricity—The Basics 50 The Electric System 52 Electrical Shock 54 Anatomy of an Electric Shock 55 Responding to Injuries 56 Approaching Energized Areas 56 Overview 56 Precautions When Approaching Downed Lines 57 Circle of Safety 57 Storm Conditions 57 Vehicle Rescue from Downed 57 Power Lines 57 Step Potential 58 Exiting the Vehicle 58 Emergencies Involving Electrical Facilities Facilities 58 |
| Considerations for Underground Chambers. 58 Electricity in Building Fires. 59 Substation, Plant, and Transmission Fires 60 Components of a Substation. 60 Power Transformers 60 Power Circuit Breakers 60 Distribution Circuit Breakers/Reclosers 60 Definitions 63 Review Questions 63 |
| CHAPTER II RECOGNIZING AND AVOIDING THE HAZARDS OF NATURAL GAS AND CARBON MONOXIDE |
| Introduction |

vi CONTENTS

| The Natural Gas Delivery System 67 | |
|---|--|
| Natural Gas Utility Oversight73 | |
| Keeping the Gas System Safe—Damage Prevention and | |
| Response | |
| Prevention | |
| Case Study II-1: NTSB/PAB-04/01: Excavation Damage to Natural Gas Distribution Line Resulting | |
| in Explosion and Fire, Wilmington, Delaware, | |
| July 2, 2003 | |
| Detection Methods for Natural Gas74 | |
| Case Study II-2: NSTB/PAB-00/01: Natural Gas Service | |
| Line and Rupture and Subsequent Explosion and Fire, | |
| Bridgeport, Alabama, January 22, 1999 | |
| When Gas Escapes the System | |
| Initial Response | |
| Secure the Site | |
| Leaking Gas | |
| When Gas Is Escaping Outside a Building | |
| Damage to Gas Facilities | |
| When Gas Is Burning Out of Doors77 | |
| When Escaping Gas Is Found in Buildings | |
| When Escaping Gas Is Burning in Buildings77 | |
| Dealing with Natural Gas Fires79 | |
| Compressed Natural Gas Vehicle Emergency Response79 | |
| Gas Burning Inside | |
| Carbon Monoxide—Cause, Effect, | |
| and Response | |
| Cause | |
| Effect | |
| Emergency Response | |
| Review Questions84 | |
| | |
| CHAPTER III RECOGNIZING AND AVOIDING | |
| THE HAZARDS OF PROPANE | |
| | |
| Introduction | |
| Properties and Characteristics of Propane85 | |
| Propane Delivery System | |
| Keeping the System Safe | |
| General Emergency Response Procedures 86 | |
| Propane Cargo Truck Emergency Response 88 | |
| | |
| Propane Vehicle Emergency Response | |
| Barbecue Grill Fire/Leak Response | |
| Review Questions90 | |

| SECTION E APPENDICES |
|--|
| APPENDIX I NJ PUBLIC EMPLOYEES OCCUPATIONAL HEALTH AND SAFETY ACT |
| APPENDIX II NJ PUBLIC EMPLOYEES OCCUPATIONAL HEALTH AND SAFETY ACT REGULATIONS |
| APPENDIX III RIGHT TO KNOW EDUCATION AND TRAINING PROGRAMS |
| APPENDIX IV THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT114 |
| APPENDIX V How the Act Is Enforced 119 |
| APPENDIX VI How to Obtain Information Locally120 |
| APPENDIX VII REGULATIONS FOR THE NJ PERSONNEL ACCOUNTABILITY SYSTEM |
| APPENDIX VIII REGULATIONS FOR THE NJ INCIDENT MANAGEMENT SYSTEM |
| APPENDIX IX MODEL SOP FOR THE NJ PERSONNEL ACCOUNTABILITY SYSTEM |
| APPENDIX X PUBLIC EMPLOYER'S GUIDE AND MODEL WRITTEN PROGRAM FOR THE HAZARD COMMUNICATION STANDARD |



New Jersey State Fire Marshal

New Jersey Division of Fire Safety

Dear Firefighter Recruit:

Welcome and congratulations on taking the first step in your training to become a firefighter. I commend you for your desire, your commitment of time and effort, and lastly, your enthusiasm to join the brother/sisterhood of the fire service.

As you advance through your Firefighter I training, please embrace the subjects that are contained in this basic recruit curriculum. Keep in mind that your future success and safety will be forged by the course's 135 hours.

The New Jersey Division of Fire Safety has partnered with county and municipal fire training academies to ensure that training is standardized and that your textbook, New Jersey addendum materials, study guide, and instructional materials are identical. We believe this training curriculum provides the best instructional and student learning resources ever and will be instrumental in honing your firefighting knowledge and practical skills.

The fire service instructors who work to develop your knowledge and performance capabilities are dedicated, skilled professionals. They bring extensive know-how and many years of experience into the classroom to guide you through this nationally accredited Firefighter I training program. You may have heard that "no two fires are the same." I believe this is true, but there are common elements and lessons to be learned from each fire incident. Your instructors will bring these common threads together to provide you with fire ground survival information.

Firefighter I is just the beginning of your professional development, and I urge you to attend additional training programs and be recognized as a true fire service professional. Therefore, your fire department, county/municipal training academy, community county college, national fire service training institutions, and the New Jersey Division of Fire Safety are committed to serve your continuing educational needs.

Again, let me commend you on your decision to become a firefighter. I trust that the people you meet and the challenges you overcome in your fire service career will be both rewarding and cherished by you. You have my respect and admiration for your dedication and commitment to the community.

Good luck and be safe.

Lawrence Petrillo

State Fire Marshal, Director

New Jersey Division of Fire Safety

viii ■ ACKNOWLEDGEMENTS



ACKNOWLEDGEMENTS

The New Jersey Division of Fire Safety wishes to acknowledge the Training and Education Council for assisting in the development of this manual.

Training & Education Advisory Council

C. Kenneth Anderson (Chairperson) Roger S. Potts (Vice-Chairperson) Gregory S. Kirkham (Liaison)

Richard R. Anderson Charles Aughenbaugh, Jr. Albert S. Beers Dr. Brian Bennett, Ph.D.

Thomas "Skip" Bischoff

Frank J. Capron

Harry R. Carter

Anthony M. Connell

Chris Eckert

Timothy Flannery

Glenn Franzoi

Maris G. Gabliks

David L. Gsell

William A. Hopson

Andrew G. Jensen

Thomas E. Kolbe

Christopher A. Kozub

Chester J. Krawcykowski, Jr.

John C. Kubilewicz

Anthony S. Mangeri

James McColgan

Leonard J. Minkler, Jr.

Kent D. Neiswender

John F. Rindt, Jr.

William L. Russell, III

Paul C. Sandrock

Fredrick G. Searby, Jr.

Richard F. Worrell

Raymond L. VanMarter

The written material developed for Section D—Utilities was inspired by the Associated Electric & Gas Services Limited ("AEGIS"). AEGIS created a training tool for emergency responders for electric and gas emergencies by developing DVDs entitled "Electricity—Recognizing and Avoiding the Hazards" and "Natural Gas—Recognizing and Avoiding

the Hazards". The written materials in these chapters were developed to generally follow the AEGIS's DVDs. The New Jersey utilities, Propane Association, New Jersey Department of Community Affairs—Division of Fire Safety, and the Board of Public Utilities partnered with AEGIS to develop this additional training material to help first responders recognize hazards associated with utility and energy emergencies and offer approaches to safely manage emergency response.

The following individuals developed the written material:

Chapter 1—Recognizing and Avoiding the Hazards of Electric Facilities

William Stevenson—Jersey Central Power and Light Company Vincent Lombardi—Public Service Electric and Gas Company Robert Green—Public Service Electric and Gas Company

Chapter II—Recognizing and Avoiding the Hazards of Natural Gas & Carbon Monoxide

Howie Brey—New Jersey Natural Gas Company

Steve McGrath—New Jersey Natural Gas Company

Stephen Freedley—Elizabethtown Gas Company

Walter Siedlecki—Elizabethtown Gas Company

Clarence Watkins—South Jersey Gas Company

Kevin Carr—Public Service Electric and Gas Company

Chapter III—Recognizing and Avoiding the Hazards of Propane

Gerard C. Stocker—Thomas Associates

Scot Macomber and Thomas Davis of AEGIS Loss Control participated on the development team, provided technical expertise and supported the project.

Lawrence Petrillo and Kent Neiswender of New Jersey Department of Community Affairs Division of Fire Safety and Douglas Ziemba of the Board of Public Utilities provided the support needed to have this material included into the firefighter's handbook.

DEDICATION

This manual is dedicated to those brave men and women in the New Jersey Fire Service who have lost their lives in the battle to fight fire and save the lives of their fellow community members.

This manual is also dedicated to the very special group within the fire service that helps every fire-fighter perform to his or her best ability, the fire service instructors.

